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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,191	03/13/2001	Tomoya Yamamoto	839.443	7836

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EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT PAPER NUMBER

1751

DATE MAILED: 07/02/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,191

Applicant(s)

YAMAMOTO ET.AL.

Examiner

Kallambella Vijayakumar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05/28/03 in Paper-8.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-80 is/are pending in the application.
- 4a) Of the above claim(s) 67-71 and 75-80 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 5,6,9-66 and 72-74 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

- Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy of JP 2000-069100 filed March 13, 2000 has been filed in parent Application No. 09/804191, dated March 13, 2001. Claims 1-80 are currently pending with the application.
- Applicant's election with traverse of Group-1 (Claims 1-66 and 72-74) in Paper No. 8 is acknowledged. The traversal is on the ground(s) that "there would not be undue burden in examining as the four groups that are not so unrelated." This is not found persuasive because of distinct classification of the groups and the reasons given under Election-Restriction in Paper-6, dated May 12, 2003.

Claims 67-71 and 75-80 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected groups.

The requirement is still deemed proper and is therefore made FINAL.

- The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
- The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A (1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner on form PTO-892 has cited the references, and/or the applicant has submitted cited references on PTO-1449, they have not been considered.

Claim Objections

- Claims 5-6, 9- 66, and 72-74 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and/or can not depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 5-6, 9- 66 and 72-74 have not been further treated on the merits.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- The use of phrase "for a rechargeable lithium battery" in the claim-1 has not been treated with patentability. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

The examiner construes this language as "Intended Use" and not treated with merits for patentability.

- Claims 1-4 and 7-8 rejected under 35 U.S.C. 102(b) as being anticipated by Bonneman et al (US Patent 5,435,830) or Mallory (US Patent 4,397,812).

Bonneman et al teach the preparation of finely divided micro-crystalline to amorphous metal and/or alloy powders from a group of metals including *Sn* and *Ni*, wherein corresponding cations present as metal/complex salt solutions in solvents were reduced with reducing agents such as hydrides in presence of complexing agents (Abstract, Col-2, Lines: 6-21, Col-10, Example-9). The particle size of the metals/alloys formed ranged from 0.01 μm to 200 μm , the principal size being less than 50 μm in diameter (Col-3, Lines: 25-28, Fig: 1-2). The crystallinity of metals/alloys ranged from microcrystalline to amorphous, the half width of the major peak was greater than 0.5° (Col- 3, Lines: 41-55, Fig: 3-4). The red-ox chemistry between the metal ions and the reducing agent/s would be inherent. *Sn* would meet the limitation of a metal that could electrochemically alloy with *Li* and *Ni*-meets the limitation of a transition metal. All the limitations of the instant claims are met.

The reference is anticipatory.

Mallory discloses the preparation of nickel polyalloys containing an element of *B* or *P* and one or more metals selected from *Sn*, *W*, *Mo*, or *Cu* as plated deposit over *Ni* (Abstract). Mallory et al teach making of these alloys by having a electroless plating bath containing *Ni* cation solution, source of metal cation selected *Sn* or *Cu*, a reducing agent comprising of a boron compound or a hypophosphite ion, a pH regulator and an ester complex of a polyhydric compound (Col-2, Lines: 1-13). Mallory further discloses the use of stabilizers such as thiourea and complexing agents such as EDTA in the reaction bath. Mallory discloses the making of alloys such as *Ni-P-Sn*, *Ni-P-Sn-Cu*, *Ni-P-Sn-Cu* and *Ni-B-Sn-Cu* (Col-6, Lines: 8-20; Col-9, Examples: 5-9). Mallory also disclose the amorphous nature of *N-P-Sn-Cu* polyalloys (Col-7,

Lines: 25-28). Mallory further disclose that the composition of polyalloy could be controlled by the selection of desired components added to the bath (Col-4, Lines: 15-18). The pH range varied from 5.9 to 9.6 based on the composition of the bath (Col-5, Lines: 5-10). The half band width of major peak to be greater than 0.5° and the particle size of the alloy particles would be inherent as shown by Bonneman et al as above. All the limitations of the instant claims are met.

The reference is anticipatory.

- Claims 1-4 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Bonneman et al (US Patent 5,435,830) or Mallory (US Patent 4,397,812) in view of Kawakami et al (US Patent 5,795,679).

The disclosures by Bonneman et al and Mallory on the preparation of amorphous alloy powders are set forth as above.

Bonneman et al or Mallory do not disclose the amorphous alloy powders to be electrode materials in a rechargeable battery.

Kawakami et al disclose the fabrication of negative electrode for Lithium secondary cell with an alloyed metallic powder comprising of at least one amphoteric metal selected from Al, Zn, Sn and Pb and at least one metal selected from Ni, Co, Cu, Ti, and Fe. (Col-2, Lines: 35-50; Col-13, Example-1; Col-15, Example-6). The desired particle diameter of the alloy particles was $\leq 10 \mu\text{m}$ and the desired surface area for the alloy particles was $\geq 10 \text{ m}^2/\text{g}$ (Col-2, Line: 41; Col-5, Lines: 1-10).

Bonneman et al and Mallory teach the making of amorphous alloy powders such as Ni-Sn and further teach that the composition of these alloy powders could be controlled by the selection

of reaction components. Kawakami et al disclose the use of Ni-Al, Ni-Sn alloys as negative electrodes in Li-secondary battery, whose alloy powders are nearly same as those by either Bonneman or Mallory. It would have been obvious for a person of ordinary skill to take amorphous alloy powders of either Bonneman or Mallory, further modify the composition, choose desired raw materials and/or appropriately change in preparative conditions by choice of design as suggested by Mallory, and use it as an electrode material in a Lithium Secondary Battery as taught by Kawakami, because the alloy compositions of either Bonneman or Mallory are almost close to that used by Kawakami, with a reasonable expectation of success in arriving at the limitations of the instant claims by the applicants.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Thackeray et al (US Patent # 6,528,208) disclose the anodes comprising of binary alloys and their x-ray diffraction data.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 703-305-4931. The examiner can normally be reached on M-Th, 07:00 - 15.30 hrs, Fri: 05.30-14.00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 703-308-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

kmv
June 24, 2003


YOGENDRA N. GUPTA
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